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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/911,279	07/23/2001	Caroline M. Ylitalo	56473US002	4080

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3M INNOVATIVE PROPERTIES COMPANY
PO BOX 33427
ST. PAUL, MN 55133-3427

EXAMINER

BERMAN, SUSAN W

ART UNIT PAPER NUMBER

1711

DATE MAILED: 07/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/911,279

Applicant(s)

YLITALO ET AL.

Examiner

Susan W Berman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Response to Amendment

The amendment to the title has been entered.

Response to Arguments

Applicant argues that the primary references do not provide motivation to substitute other surfactants for those disclosed. This argument is not persuasive because each of the primary references teaches using perfluorinated surfactants in ink jet ink compositions, thus providing motivation to employ perfluorinated surfactants in the disclosed ink compositions. Savu et al teach perfluorinated surfactants considered to be analogous in structure and having the same function as the surfactants disclosed by the primary references. Savu et al specifically teach that surfactants derived from perfluorobutanesulfonyl fluoride have surface activities that surprisingly rival the surface activities of homologs made from perfluorooctane segments such as perfluorooctanesulfonyl fluoride (page 2, lines 13-16). Thus, one of ordinary skill in the art at the time of the invention would have been motivated to substitute that surfactants containing perfluorobutanesulfonyl groups for surfactants containing perfluorooctanesulfonyl groups by a reasonable expectation of successfully providing an ink jet ink and also by an expectation of providing the advantageous surface activities taught by Savu et al.

Applicant argues that Savu et al teach surfactants for use in the oil industry and do not suggest use in ink jet ink compositions. This argument is not persuasive because Savu et al teach that the disclosed surfactants are advantageous to use in place of homologs made from perfluorooctane segments such as perfluoro-octanesulfonyl fluoride (POSF) (page 2, lines 13-25). Several methods of use are taught, including oil well stimulation additives and coating additives in coating applications, wetting agents or additives in photoresists, and leveling additives for resist inks and other inks (page 25, lines 17-27). Thus, although ink jet inks are not specifically mentioned, use in ink formulations is clearly suggested.

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Applicant argues that the surfactants taught by Savu et al would not have been expected to be suitable for use in ink jet applications due to their ability to form foam. This argument is not persuasive because the example given by Savu et al of foam stability involves adding heptane to an acrylate composition to obtain a stable sea water foam upon shaking. Savu et al do not teach or suggest that the disclosed surfactants will cause foaming of ink compositions. One of ordinary skill in the art at the time of the invention would not have been motivated to obtain a foam in a ink jet ink composition. in any case, there is no reason to expect foam formation in the absence of foaming agent. Savu et al do not teach or suggest foaming other kinds of compositions than those in Examples 52-56.

Specification

The disclosure is objected to because of the following informalities: In the specification on pages 54-55, it is not clear whether the Examples are Examples 53-54 as set forth on page 54 or Examples 52 and 53 as listed on page 55. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13, 18-21, 23 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Held (5,852,075) in view of WO 01/30873. Held discloses a surfactant system for ink jet inks containing an aqueous carrier and a colorant. The surfactant system comprises a siloxane surfactant and a fluorinated surfactant. Held uses a fluoroalcohol substituted monoether with polyethylene glycol in the examples (see

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Ink preparations 2, 3 and 4). See column 6, line 41, to column 7, line 47. See surfactant no. 4 in Table 1. WO 01/30873 discloses fluorochemical surfactants derived from nonafluorobutanesulfonyl fluoride corresponding to the structures of the instantly claimed surfactants. WO '873 teaches that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane sulfonyl fluoride". WO '873 teach using the disclosed surfactants as leveling agents in inks (page 25, lines 17-19).

It would have been obvious to one skilled in the art to select a fluoroalcohol substituted monoether with polyethylene glycol as the fluorinated surfactant in the compositions disclosed by Held because Held uses a fluoroalcohol substituted monoether with polyethylene glycol in the examples (see Ink preparations 2, 3 and 4). It would further have been obvious to one skilled in the art to substitute a fluorochemical surfactant taught by WO '873 for the fluorinated surfactants containing a perfluoralkyl group and polyether groups taught by Held in the compositions disclosed by Held, with the expectation of providing similar or improved surfactant properties. WO '873 provides motivation to employ the disclosed surfactants by teaching that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane sulfonyl fluoride". With respect to claims 23 and 26-29, it would have been obvious to one skilled in the art to employ the ink compositions disclosed by Held in a method of ink jet printing comprising ejecting the ink compositions from an ink jet printhead onto a substrate because Held teaches that the disclosed compositions are suitable inks for ink jet printers.

Claims 1-13, 18-23 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0 974 626 A1 in view of WO 01/30873. EP '626 discloses aqueous pigmented inks for ink jet printing on vinyls. The inks comprise an aqueous vehicle, an insoluble colorant, a polymeric dispersant, and a silicon or fluorinated surfactant. See page 6. See surfactant no. 4 in Table 1 and Examples 1-4. WO 01/30873

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discloses fluorochemical surfactants derived from nonafluorobutanesulfonyl fluoride corresponding to the structures of the instantly claimed surfactants. WO'873 teaches that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane sulfonyl fluoride". WO '873 teach using the disclosed surfactants as leveling agents in inks (page 25, lines 17-19).

It would have been obvious to one skilled in the art to select a fluorinated surfactant as the surfactant in the compositions disclosed by EP '626 because EP '626 teaches that the surfactant can be a silicon or a fluorinated surfactant and that a fluoroalcohol substituted monoether with polyethylene glycol or telomer B monoether with polyethylene glycol is preferred. It would further have been obvious to one skilled in the art to substitute a fluorochemical surfactant taught by WO '873 for the fluorinated surfactant containing a perfluoralkyl group and polyether groups taught by EP '626 in the compositions disclosed by EP '626, with the expectation of providing similar or improved surfactant properties. WO '873 provides additional motivation to employ the disclosed surfactants by teaching that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane sulfonyl fluoride". With respect to claims 23 and 26-29, it would have been obvious to one skilled in the art to employ the ink compositions disclosed by EP '626 in a method of ink jet printing comprising ejecting the ink compositions from an ink jet printhead onto a substrate because EP '626 teaches that the disclosed compositions are suitable inks for ink jet printers.

Claims 1-17, 19-29 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caiger et al (6,114,406) in view of WO 01/308073. Caiger et al disclose radiation curable ink compositions comprising acrylate monomers and oligomers, a photoinitiator and a fluorosurfactant. Caiger et al teach that suitable surfactants are preferably non-ionic and use fluoro surfactants in the examples (column 3,

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lines 52-55). WO 01/30873 discloses fluorochemical surfactants derived from nonafluorobutanesulfonyl fluoride corresponding to the structures of the instantly claimed surfactants. WO'873 teaches that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane sulfonyl fluoride". WO '873 teaches using the disclosed surfactants as leveling agents in inks (page 25, lines 17-19).

It would have been obvious to one skilled in the art to employ the fluorochemical surfactants taught by WO '873 as the fluoro surfactant in the ink compositions disclosed by Caiger et al. Caiger et al teach that the surfactant is preferably a nonionic surfactant and a fluoro surfactant, thus providing motivation to employ nonionic fluorosurfactants in the disclosed ink compositions. Furthermore, Caiger et al do not limit the surfactants to those specifically used in the examples. WO '873 provides motivation to employ the disclosed surfactants by teaching that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane sulfonyl fluoride". It would have been obvious to one skilled in the art at the time of the invention to expose the disclosed ink jet ink compositions to actinic radiation, such as UV radiation, in order to polymerize the ink because Caiger et al teach radiation curable compositions containing a photoinitiator.

Claims 1-13, 15-23 and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Breton et al (5,863,320) in view of WO 01/308073. Breton et al disclose an ink containing a liquid vehicle, colorant and a perfluorosurfactant, such as a perfluorooctanesulfonamide ethylacrylate. See column 3, lines 38-47. WO 01/30873 discloses fluorochemical surfactants derived from nonafluorobutanesulfonyl fluoride corresponding to the structures of the instantly claimed surfactants. WO'873 teaches that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane

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sulfonyl fluoride". WO '873 teaches using the disclosed surfactants as leveling agents in inks (page 25, lines 17-19).

It would have been obvious to one skilled in the art to employ the fluorochemical surfactants taught by WO '873 as the perfluorosurfactant in the ink compositions disclosed by Breton et al. Breton et al teach that the surfactant is preferably a perfluorooctanesulfonamide ethylacrylate, thus providing motivation to employ perfluoro- sulfonamide ethylacrylate fluorosurfactants in the disclosed ink compositions. WO '873 provides motivation to employ the disclosed perfluoro-sulfonamide derived surfactants by teaching that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane sulfonyl fluoride".

Claims 1-13, 15-30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/07796 in view of WO 01/308073. WO '796 discloses an ink containing a water-dispersible or water-soluble acrylate polymerizable material, a second polymerizable material, a colorant, a photoinitiator. Addition of a perfluorosurfactant, such as a perfluoro-sulfonamide salt (Fluorad FC129) is taught in Example 1. WO 01/30873 discloses fluorochemical surfactants derived from nonafluorobutanesulfonyl fluoride corresponding to the structures of the instantly claimed surfactants. WO'873 teaches that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane sulfonyl fluoride". WO '873 teaches using the disclosed surfactants as leveling agents in inks (page 25, lines 17-19).

It would have been obvious to one skilled in the art to employ the fluorochemical surfactants taught by WO '873 as the perfluoro-sulfonamide surfactant in the polymerizable ink compositions disclosed by WO '796 for the following reasons. WO '796 teaches that the disclosed compositions can comprise a perfluoro- sulfonamide surfactant. WO '873 provides motivation to employ the disclosed

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perfluoro-sulfonamide derived surfactants by teaching that the disclosed surfactants "lower the surface tension of water and other liquids in the same or similar low values achieved by premier surfactants such as those derived from perfluorooctane sulfonyl fluoride".

Claims 31-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 99/07796, Held, EP '626, Caiger et al or Breton et al, each in view of WO 01/30873, as applied to claims 1, 23, 26 and 30 above, and further in view of Adkins et al (6,113,679). Each of the primary references discloses ink jet inks for printing on a substrate. Adkins et al disclose inkjet inks comprising analogous components, such as a binder and a fluorochemical surfactant, and teach that the receiving substrate can be polymeric films, such as acrylic-containing films, and that the films can be retroreflective (column 5, line 60, to column 6, line 32. Thus, It would have been obvious to one skilled in the art at the time of the invention to apply the ink jet ink compositions taught by the combination of any of the primary references with WO '873 to a polymethylmethacrylate film that is retroreflective, as taught by Adkins. The reason is that the ink jet ink compositions are very similar in composition and would be expected to be successfully applied to a film such as polymethylmethacrylate that is retroreflective because Adkins et al teach such an application for the disclosed ink jet inks.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action

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is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 703 308 0040. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703 308 2462.

The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9310 for regular communications and 703 872 9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.



Susan W Berman
Primary Examiner
Art Unit 1711

SB
July 18, 2003